

one and the same Colour and degree of Colour from one end of this line to the other. I delineated therefore in a Paper the perimeter of the Spectrum  $FAPGMT$ , and in trying the third Experiment of the first Book, I held the Paper so that the Spectrum might fall upon this delineated Figure, and agree with it exactly, whilst an Assistant whose Eyes for distinguishing Colours were more critical than mine, did by right lines  $\alpha\beta$ ,  $\gamma\delta$ ,  $\epsilon\zeta$ ,  $\eta\theta$ ,  $\iota\kappa$ ,  $\lambda\mu$ ,  $\nu\pi$ , drawn cross the Spectrum, note the confines of the Colours that is of the red  $M\alpha\beta F$  of the orange  $\alpha\gamma\delta\beta$ , of the yellow  $\gamma\epsilon\zeta\delta$ , of the green  $\epsilon\eta\theta\zeta$ , of the blue  $\eta\iota\kappa\theta$ , of the indico  $\iota\lambda\mu\kappa$ , and of the violet  $\lambda G A\mu$ . And this operation being divers times repeated both in the same and in several Papers, I found that the Observations agreed well enough with one another, and that the rectilinear sides  $MG$  and  $FA$  were by the said cross lines divided after the manner of a musical Chord. Let  $GM$  be produced to  $X$ , that  $MX$  may be equal to  $GM$ , and conceive  $G X$ ,  $\lambda X$ ,  $\iota X$ ,  $\eta X$ ,  $\epsilon X$ ,  $\gamma X$ ,  $\alpha X$ ,  $MX$ , to be in proportion to one another, as the numbers  $1$ ,  $\frac{8}{9}$ ,  $\frac{5}{6}$ ,  $\frac{3}{4}$ ,  $\frac{2}{3}$ ,  $\frac{3}{5}$ ,  $\frac{9}{16}$ ,  $\frac{1}{2}$ , and so to represent the Chords of the Key, and of a Tone, a third Minor, a fourth, a fifth, a sixth Major, a seventh, and an eighth above that Key: And the intervals  $M\alpha$ ,  $\alpha\gamma$ ,  $\gamma\epsilon$ ,  $\epsilon\eta$ ,  $\eta\iota$ ,  $\iota\lambda$ , and  $\lambda G$ , will be the spaces which the several Colours (red, orange, yellow, green, blue, indico, violet) take up.

Now these intervals or spaces subtending the differences of the refractions of the rays going to the limits of those Colours, that is, to the points  $M$ ,  $\alpha$ ,  $\gamma$ ,  $\epsilon$ ,  $\eta$ ,  $\iota$ ,  $\lambda$ ,  $G$ , may without any sensible Error be accounted proportional to the differences of the sines of refraction of those rays

rays having one fore since the co least refrangible method describe fines of refraction ference between line  $GM$  is div 77, 77 $\frac{1}{2}$ , 77 $\frac{1}{3}$ , refraction of th common sine of of the incidence Glafs into Air, not greater than varied from on diate Proportion of the green-r their refractions to 77 $\frac{1}{2}$ , unto tha above-mentioned longing to the re the red-making of the orange-ma low-making from from 77 $\frac{1}{2}$  to 77 $\frac{1}{3}$ , 77 $\frac{2}{3}$ , those of th those of the viol

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